Special Issue

Additive Manufacturing and Microstructure Characteristics of Metallic Material

Message from the Guest Editors

For a given metal fabricated by additive manufacturing (AM), there can be a variety of microstructural features that affect its mechanical and functional properties, including the size of grains, grain boundaries, formation of anisotropic and heterogeneous microstructure. During the AM process, the microstructure is formed in situ and would therefore depend largely on the process parameters and material used. The process parameters are dependent on the metal AM method used. Therefore, this Special Issue aims to appeal to the latest research about the microstructure in metals and alloys fabricated by different AM technologies. Examinations of titanium, iron, nickel, cobalt, copper, zirconium and their alloys, as well as refractory metals, glass metals, noble metals and high-entropy alloys, are all welcomed. AM technologies focus primarily on powder bed fusion and direct metal deposition, while solid-state processes such as ultrasonic additive manufacturing and cold spray additive manufacturing are also on our radar. Beyond the materials and techniques summarized above, the microstructure characterization of metal AM parts after various post-treatments is also within this scope.

Guest Editors

Dr. Haiyang Fan

Dr. Junsheng Wang

Dr. Qimin Shi

Dr. Kaihao Zhang

Dr. Wei Fan

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Materials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

mdpi.com/journal/materials

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

Editor-in-Chief

Prof. Dr. Maryam Tabrizian
1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

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